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No. 14

THE TAMING OF LOBELIA

The earliest man was a scavenger. He hunted his meat and picked his greens from the untamed woods, where wildlife and plants were abundant. As the centuries passed, man settled down, domesticated animals, and, after combing the woods, brought home plants that he could cultivate at his doorstep.

Today, at least one government scientists is still looking to the woods for potential cultivable crops. Recently, in an infrequent happening, Dr. Arnold Krochmal, Principal Economic Botanist at the Forest Service Research Laboratory in Berea, Ky., learned how to germinate and cultivate one valuable plant -- the wild Appalachian Indian tobacco plant -- as an annual row crop.

This plant, formally known as Lobelia inflata, is in special demand today because it is the source of an alkaloid frequently used in anti-smoking preparations. It is found in a wide range of habitats -- in abandoned fields and in open glades and along old lumber roads in hardwood forests. However, supplies of the plant have recently diminished because of declining interest in harvesting wild drug plants.

As a result of Forest Service research studies begun in 1967, it will now be possible to farm Lobelia. Future supplies will be better assured.

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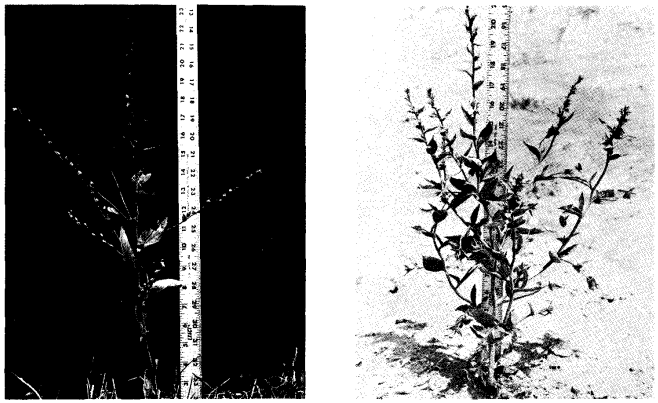
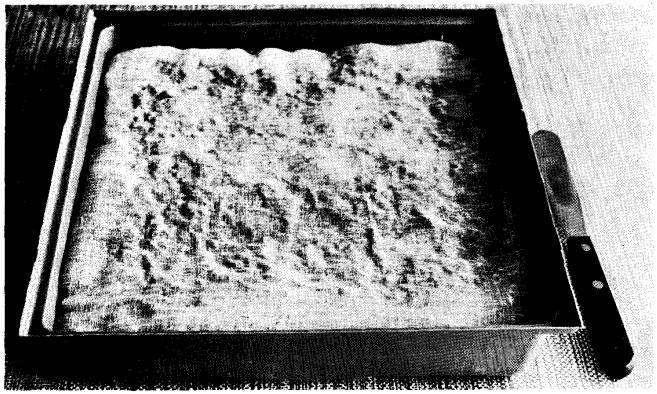


A wild young Lobelia plant (l.) and its possible successor, a cultivated young plant (r.).

PROPAGATION: Lobelia seeds, which are smaller than tobacco seeds, can be harvested from wild plants for the first planting. Seed harvest can begin about July and continue through August. Dr. Krochmal has found it easiest and most practical to harvest the entire plants with seed capsules. Capsules should be removed indoors to minimize seed loss. They can be air dried for a week to 10 days, when capsules will open most readily for seed removal.

Dr. Krochmal has used a 60 mesh screen to separate the seed from chaff. He stores seed over winter at room temperature in mason jars with cheesecloth covers, and recommends that planting be done about January or February, depending on time of field seeding.

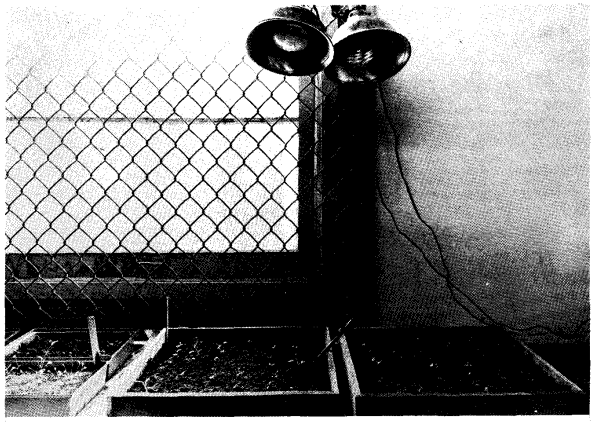


A plastic seed flat ready for seeding.

Seed flats should be filled with a potting mix (1/3 sand, 1/3 soil, 1/3 peat), covered with cheesecloth. Seeds can be scattered over the top of the cheesecloth. Bottom watering is essential to keep the tiny seeds from washing together in clumps. The flats can be set in a shallow tray for this purpose.

Lobelia plants are minute when first germinating.

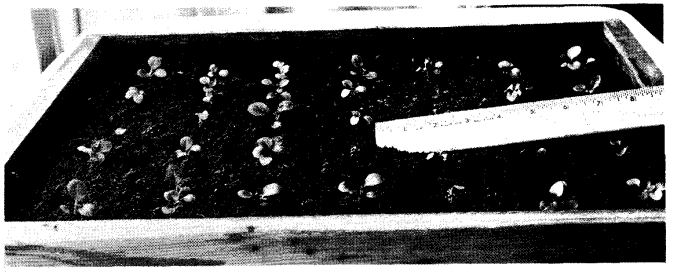
Light in the red end of the spectrum is required for germination. This can be provided by the use of incandescent household light bulbs. A continuous light source of two 200-watt bulbs, in reflectors, or one 200-watt and one 100-watt bulb can be used to supplement or replace daylight. These lights should be placed about 2 1/2 feet above the seed flats. Each set of two reflectors will serve four to eight flats, depending on the size of the flats. Any suitable room or warm area with some sun exposure will do.



Two reflectors with bulbs fastened to a window provide a continuous source of supplemental light. The flats are in a watering tray.

When plants are large enough for first transplanting, the cheesecloth will have decayed so that removal of plants is easy.

Germination takes place a week or 10 days after planting. After 6 to 8 weeks of growth, when some of the plants are about 1 to 1 1/2 inches tall, they should be transplanted in seed flats at a spacing of 2 inches by 2 inches. These flats are best filled with potting mix covered with 1 inch of peat moss.

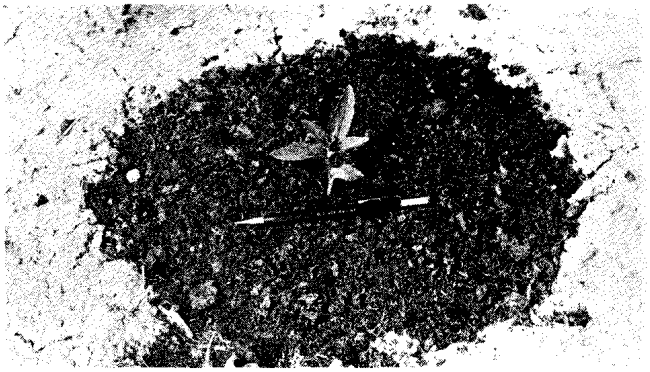


A larger flat is useful for the larger plants after the first transplanting.

FIELD PLANTING: Dr. Krochmal suggests small plantings of 1/8 acre for growers until they gain experience in handling this plant.

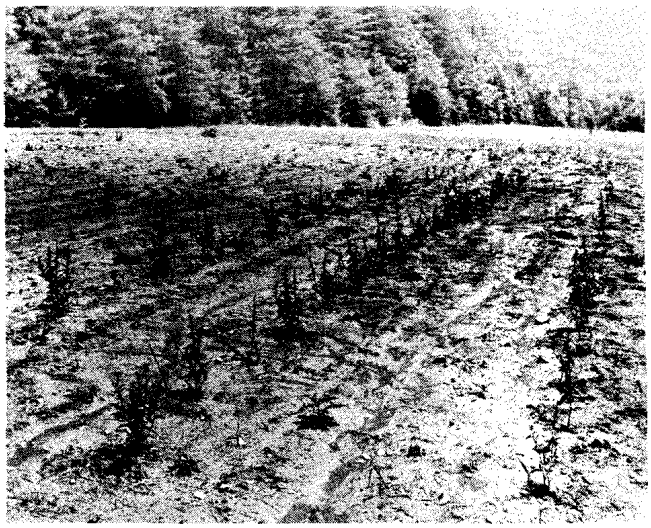
Three to five weeks after transplanting, when the plants are about 2 inches tall, they are ready for field planting. The distance between rows in field planting will depend on the cultural implements to be used for week control; but it should be at least 18 inches. In Madison County, Ky., Dr. Krochmal has grown crops in silty clay loam with a heavy hardpan 24 inches below the surface and with poor drainage.

If flowering begins within a month of planting, removal of flowers is suggested to increase initial vegetative growth. Weeds should be kept under control during the growing season, and as harvest time approaches, clear cultivation is required to prevent the harvest of undesirable weed plants. Scientists have noted no need for insecticides or fungicides and suggest avoidance of herbicides in order to reduce the risk of crop contamination.



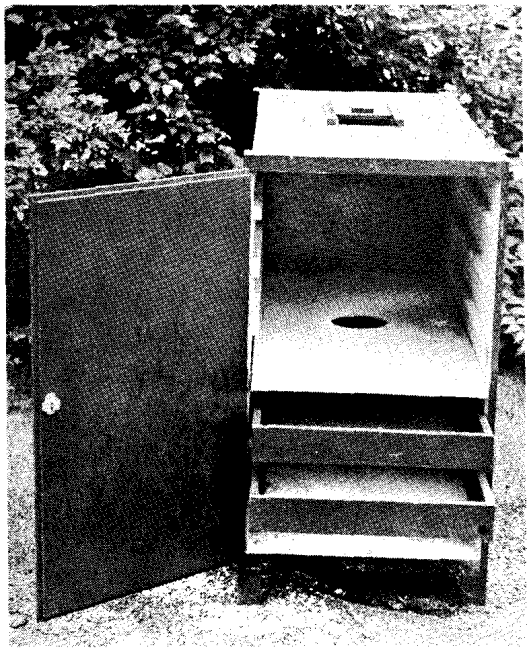
A young field plant around which peat moss was placed at planting time to help conserve moisture.

In transplanting, a small amount of peat moss can be put into the planting hole and around the base of the plant to conserve moisture. As the plants are set, they should be watered. Watering should be frequent the first two weeks (daily or on alternate days), then as needed (depending on rainfall). No need for fertilizer has been established.



Garden grown young Lobelia plants.

HARVESTING: Harvesting for maximum yield of the alkaloid requires the plants to be cut at ground level when they are in full bloom, or at the time of early seed set in the middle of August or early September. Harvesting can be done by knife, sickle, or mowing bar. The plants can be laid in windrows until enough are cut to move to the drying area. Because this is a very new crop, limited experience exists on which to make yield predictions.



A simple drying box with forced air electric space heater in the rear.

DRYING: Harvested plants should go under cover as soon as practical to reduce possible rain damage and decay. To promote drying, harvested plants can be spread out on a newspaper several layers thick for about a week, or they can be dried in a simply home drying box. This box, equipped with an electric forced air heater, can be constructed inexpensively. In such a box, drying plants can be laid in trays, five to six layers deep.

When plants reach the crackling dry state, they can be bundled into burlap bales for shipment to a buyer. No standard weight or size package is in use.